13TH ANNUAL RESEARCH SYMPOSIUM

June 15, 2016
6:45 a.m. – NOON
Potter Conference Room

NEW ENGLAND BAPTIST HOSPITAL
Division of Research
About the Continuing Medical Education (CME) Program for Physicians

New England Baptist Hospital is accredited by the Massachusetts Medical Society to provide continuing medical education for physicians. New England Baptist Hospital designates this educational activity for a maximum of two credits AM A PRA Category 1 Credit. Physicians should only claim credit commensurate with the extent of their participation in this activity.

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WELCOME

Dear colleagues,
Welcome to New England Baptist Hospital and our 13th Annual Research Symposium. As authors, educators and researchers, it is important that we collaborate, share knowledge and advance the field through research efforts. I congratulate everyone who has contributed over the past year, with special recognition given to the poster winner of the 2016 Symposium.
Sincerely,

Trish Hannon
President and CEO

DIVISION OF RESEARCH MISSION STATEMENT

Coordinate, Develop and Lead Clinical and Translational Research and Research Education at NEBH

Facilitate the continued success of existing research groups at NEBH, and forge new collaborations with investigators within and outside NEBH in clinical, translational and patient centered outcomes research

Collaborate with clinical programs at NEBH to develop evaluations of outcomes and quality

Develop new and foster existing educational initiatives focused on training and mentoring a new generation of scientists

Expand collaborations within NEBH and develop new research initiatives and programs with Tufts Medical School and University, Boston University, Harvard Schools and other institutions

Pursue research relationships with government, foundations, philanthropists, professional organizations, industry, and potential research participants

Disseminate research findings, promoting NEBH as a center of excellence in musculoskeletal disease management

Support and advance the NEBH mission and work with integrity, inclusion, and respect for our team, research subjects, and sponsors
Kaitlyn Bergeron
Clinical Research Coordinator

Ronna Berezin
Manager, Clinical Research Coordinators

Qingping Cui
Biostatistician

Kathy Fatovic
Clinical Research Coordinator

Sharon Feldman
Registry Assistant

Amanda Fredette
Senior Clinical Research Coordinator

Ellen Kornell
Manager, Research Protections & Operations

Eduardo Morales
Manager, NEBH Registry

Rebecca Mortensen
Clinical Research Coordinator

Haley Oh
Director, Research Administration & Finance

Claire Robbins
Clinical Research Coordinator

Gary Schneider
Chief, Division of Research

Steven Vlad
Director, Study Design

The Division of Research would like to dedicate this year’s symposium to

Priscilla Perez
For her caring and devotion to her school, work, friends and family
Miki Patterson, PhD, RNFA, PNP

Miki Patterson received her bachelor's degree from Fitchburg State University, a master's degree from Boston College and earned a doctorate in nursing from the University of Massachusetts Medical School. Dr. Patterson is currently the Senior Director of Clinical at Intralign Health. Miki is a certified orthopedic nurse practitioner and RNFA who brings over 25 years of clinical experience in healthcare, consulting, direct advanced orthopedic patient care, teaching, NIH-level qualitative and quantitative research and publishing. She is a past president of the National Association of Orthopedic Nurses and continues to be nationally recognized for leadership and advancing orthopedic care. Miki led multidiscipline teams focused on improving surgical and orthopedic care through national benchmarking, evidenced based and patient-centered practices, and workflow re-design to measurably improve healthcare outcomes, patient satisfaction and surgeon engagement for a wide profile of client hospitals. Dr. Patterson has written several book chapters on orthopedic nursing, and has multiple research and clinical publications in peer reviewed journals.

Adam Rana, MD

Dr. Adam Rana is an orthopedic arthroplasty surgeon with Maine Medical Partners in Portland, Maine specializing in primary and revision total joint replacement surgery. He earned his Bachelor’s degree with Honors in Economics and Biology from Colby College where he graduated Cum Laude. He completed his Orthopedic Surgical Residency at Boston Medical Center where he was appointed Chief Administrative Resident during final year. He completed his fellowship in Adult Reconstruction, Arthritis, and Joint Replacement Surgery at the Hospital for Special Surgery. He was selected by the American Association of Hip and Knee Surgeons to be the Health Care Policy Fellow for 2012 to 2013. He is active with the Maine State Orthopedic Society, New England Orthopedic Society and AAHKS. He has published and lectured on multiple areas of orthopedics including the economics of total joint replacement, patient reported outcome metrics, and genetic factors relating to DVT and PE following total joint replacement. He enjoys spending time with his wife and three young children as well as cycling, hiking, and skiing.
AGENDA

6:45 am
Welcome & Refreshments

Gary Schneider
Chief, Division of Research

7:00 am – 7:35 am
Miki Patterson
An Orthopedic Nurses Research Journey

7:40 am – 8:10 am
Adam Rana
Building a Patient Reported Outcome Metric (PROM) Database:
One Hospital’s Experience

8:15 am
Breakfast

8:45 am – Noon
Poster Session
(1) Oral Tranexamic Acid Reduces Transfusions in Total Knee Arthroplasty
Perreault R¹, Talmo C¹, Mattingly D¹, Fournier Bell C²
¹Department of Research, ²Department of Nursing, ³Department of Orthopedic Surgery, New England Baptist Hospital, Boston, MA

(2) An Observational Safety and Efficacy Study Comparing a Non-Equipment Based Exercise Protocol to an Equipment Based Exercise Protocol for the Treatment of Chronic Low Back Pain
Childs LA¹, Frankart JK², DiTaranto M¹, Hartigan C¹, Kernan T¹, Rainville J¹, Vlad SC¹.⁵
¹New England Baptist Hospital, Boston MA, ²US Army, Landstuhl Germany, ³University of Massachusetts, Boston MA, ⁴Department of PM&R, Harvard Medical School, Boston MA, ⁵Tufts Medical Center/Tufts University School of Medicine, Boston, MA

(3) Assessment Of Accelerometer-based Navigation for Total Knee Arthroplasty Femoral Resection
Colacchio ND, Elsharkawy KA, Shah VM, Mattingly DA, Scott RD
New England Baptist Hospital, Boston, MA

(4) A Pilot study of posterior spinal fusion with a novel biomaterial: Tetranite™, a tetra calcium phosphate/phosphoserine self-setting composite with osteoconductive and osteoinductive properties.
Eisenbrook H¹, Slotkin J¹, Hess B¹, Woodward E¹
¹New England Baptist Hospital, Boston, MA, ²Geisinger Medical Center, Danville PA, ³Launchpad Medical, Boston, MA

(5) REDCap: A Free and Easy Research Electronic Data Capture System
Feldman SM, Morales E, Division of Research
New England Baptist Hospital, Boston, MA

(6) Arthroscopic Treatment of Recalcitrant Medial Epicondylitis
Lazar D¹, Wei D², Gaddie T³, Kimball H⁴
¹Tufts University School of Medicine, Boston, MA, ²Orthopaedic and Neurosurgery Specialists, Greenwich CT, ³Tufts Combined Hand Fellowship, Boston, MA, ⁴Hand Surgical Associates, Boston, MA

(7) Does a Patient's Self-Reported Ability to Weight-bear immediately after Injury Predict Stability for Ankle Fractures?
Hofmann KJ¹, Chien B², Ghorbanihoseini M², Zurakowski D³, Rodriguez EK², Appleton P², Ellington JK⁴, Kwon JY²
¹New England Baptist Hospital, Boston, MA, ²Beth Israel Deaconess Medical Center, Boston, MA, ³Boston Children’s Hospital, Boston, MA, ⁴OrthoCarolina Foot and Ankle Institute, Charlotte, NC

(8) Door Openings in the Operating Room Associated with Increased Environment Contamination
Perez, P, Holloway J, Ehrenfeld L, Cohen S, Joshi R, Cunningham L, Hollenbeck B
New England Baptist Hospital, Boston, MA

(9) Patient Age Differences in Expectations and Outcomes of Total Shoulder Arthroplasty
Lowe JT¹, Menendez M², Miller S¹, Jawa A¹,²
¹Boston Sports and Shoulder Center, Waltham, MA, ²Dell Medical School, University of Texas at Austin, TX, ³New England Baptist Hospital, Boston, MA
(10) Patients Recall Worse Preoperative Pain and Function after Shoulder Arthroplasty than Originally Reported: a study of recall accuracy using the ASES score
Low E J, Li X, Fasulo SM, Jawa A. 1 Boston Sports and Shoulder Center, Waltham, MA, 2 Boston Medical Center, Boston, MA, 3 New England Baptist Hospital, Boston, MA

(11) The Effect of a Preoperative Educational Video on Patient Understanding and Satisfaction for Total Shoulder Arthroplasty
Fasulo SM, Lowe JT, Vaickus M, Jawa A. 1, 2 Boston Sports and Shoulder Center, Waltham, MA, 2 New England Baptist Hospital, Boston, MA

(12) Identifying Nurses' Perceptions of Barriers to Research at an Orthopedic Specialty Hospital
McCarragher K, Fournier Bell C, Sorrentino K
Department of Nursing, New England Baptist Hospital, Boston, MA

(13) NEBH Joint Registry: A Robust Data Collection Method with Scalable Features for Research Expansion
Morales E, Feldman SM, Schneider GB
Division of Research, New England Baptist Hospital, Boston, MA

(14) High Grade Partial and <2cm Retracted Proximal Hamstring Ruptures: Non-Surgical Treatment Revisited
Piposar JR, Vinod AV, Olsen Jr, Lacerte E, Miller SL
New England Baptist Hospital, Boston, MA

(15) Comparing the impact on wellbeing between hip osteoarthritis and lumbar spinal stenosis
1 New England Baptist Hospital, Boston, MA, 2 Orthocarolina, Charlotte, NC, 3 Tennessee Orthopedic Clinic, Knoxville, TN, 4 University of Michigan Medical School, Ann Arbor, MI, 5 Brigham and Women's Hospital, Boston MA, 6 Vestfold Hospital Trust, Kystihospitalet, Norway, 7 VA Puget Sound Health Care System, Seattle, WA, 8 George Washington Medical Center, Washington, DC

(16) Comparisons of symptoms from hip osteoarthritis and lumbar spinal stenosis
1 New England Baptist Hospital, Boston, MA, 2 Orthocarolina, Charlotte, NC, 3 Tennessee Orthopedic Clinic, Knoxville, TN, 4 University of Michigan Medical School, Ann Arbor, MI, 5 Brigham and Women's Hospital, Boston MA, 6 Vestfold Hospital Trust, Kystihospitalet, Norway, 7 VA Puget Sound Health Care System, Seattle, WA, 8 George Washington Medical Center, Washington, DC

(17) The Effect of a Skin Barrier Film Product on Incidence of Postoperative Skin Blister Development in Spine Surgery: A Randomized Study
Sorrentino K, Cole MA, Donovan S, Sturgis E
New England Baptist Hospital, Boston, MA

(18) Racial Discrepancies in Distal Radius Fracture Management
Tsi EY, Antonchak M, Wang M, Stelma S, Wei DH, Cassidy C
1 Department of Orthopaedics, Tufts Medical Center, Boston, MA, 2 Tufts Medical School, Boston, MA

(19) Blood Management in an Orthopedic Setting
LeVinus LA, Deeney M, Bode R, Hayek J
New England Baptist Hospital, Boston, MA
ABSTRACTS

Oral Tranexamic Acid Reduces Transfusions in Total Knee Arthroplasty

AUTHORS: Perreault R¹, Talmo C¹, Mattingly D¹, Fournier Bell C¹

¹ Department of Research, ¹ Department of Nursing, ³ Department of Orthopedic Surgery, New England Baptist Hospital, Boston, MA

INTRODUCTION: Intraoperative blood loss is a known potential complication of total knee arthroplasty. The efficacy of intravenous and topical Tranexamic acid (TA) in total joint arthroplasty is well documented in the literature, but documented use of oral tranexamic acid (OTA) is lacking. Tranexamic acid (TA) is an antifibrinolytic lysine analog that occupies plasmin’s lysine binding sites, thereby stabilizing fibrin and inhibiting clot dissolution. Meta-analysis and prospective trials have established both the efficacy of TA in both total hip and knee arthroplasty. Use of TA has vastly increased both in the United States (US) and internationally. In the US, TA use increased from 11.2% in 2012 to becoming present day standard of care in most patients undergoing orthopedic surgery. There is a gap in the literature regarding oral TA use and optimal dosing. Evidence based data is warranted to support safe and effective use of OTA in the total joint arthroplasty population.

OBJECTIVE: To compare blood loss, need for transfusion, hemoglobin levels, and length of stay in primary total knee arthroplasty (TKA) patients who received OTA and those who did not.

METHODS: A retrospective cohort study of 2230 TKA procedures performed from August 2014 – September 2015. Three treatment cohorts were identified: patients undergoing TKA without the use of OTA (n=968), patients undergoing TKA with administration of a single-dose of OTA (single-dose OTA, n=164), and patients undergoing TKA with administration of preoperative and postoperative OTA (two-dose OTA, n=1098). Exclusion criteria were relative contraindications to OTA administration, and were applied uniformly to all groups, including the no-OTA group.

RESULTS: Transfusion rates decreased from 24.1% in the no-OTA group to 13.6% in the single-dose OTA group (p<0.001) and 11.1% in the two-dose OTA group (p<0.001), with no significant difference in transfusion rates between single- and two-dose OTA groups (p=0.357). Additionally, maximum postoperative decline in hemoglobin was reduced from 4.3 g/dL in the no-OTA group to 3.5 g/dL in the single-dose OTA group (p<0.01) and 3.4 g/dL in the two-dose OTA group (p<0.01), without a significant difference between the single- and two-dose regimens (p=0.233).

CONCLUSION: This study represents one of the largest single-center unselected series examining the effectiveness of OTA to date. Administration of OTA reduces transfusion rates and shows a significant difference in maximum postoperative decline in hemoglobin. These findings speak to the efficacy of OTA and also provide clinical evidence to support optimal dosing in this select patient cohort. Operating room time was decreased slightly, costs were calculated and further areas of study were identified.

SPONSOR: N/A

DISCLOSURE STATEMENT: Dr. Talmo is a paid employee of Astra-Zeneca and a member of the editorial or governing board of JOA. Dr. Mattingly is a paid consultant for DePuy.

ACKNOWLEDGEMENT: The authors would like to thank Claire Robbins for her editorial assistance.
An Observational Safety and Efficacy Study Comparing a Non-Equipment Based Exercise Protocol to an Equipment Based Exercise Protocol for the Treatment of Chronic Low Back Pain

AUTHORS: Childs LA1, Frankart JK2, DiTaranto ML3, Hartigan C4, Kernan T3, Rainville J4, Vlad SC1,2

1 New England Baptist Hospital, Boston MA, 2 US Army, Landstuhl Germany, 3 University of Massachusetts, Boston MA, 4 Department of PM&R, Harvard Medical School, Boston MA, 5 Tufts Medical Center/Tufts University School of Medicine, Boston, MA

INTRODUCTION: Functional restoration programs including use of exercise have been utilized for treatment of chronic low back pain for over three decades. Typically, these programs utilize equipment based resistance training and intense stretching to improve impaired trunk strength and flexibility. In addition to improving these impairments, these programs typically report modest improvement in back pain and pain related disability.

However, more widespread adoption of this treatment approach has been limited by the space requirements and cost of exercise equipment, especially for treatment facilities with limited capital resources. Identification of simplified exercise protocols may expand patient access to effective exercise therapy for chronic low back pain, by including physical therapy practices that cannot afford to purchase resistive equipment used in current protocols.

This observational comparative study will explore the safety and efficacy of a non-equipment based exercise protocol originated for military personnel (FMRS) to an established equipment based exercise protocol for the treatment of chronic low back pain (NEBH/SP).

OBJECTIVE: Aim 1: Determine if the FMRS is safe to use as a treatment for US civilian patients with chronic low back pain, and safe to later include in a randomized control trial (RCT) of the FMRS and the NEBH/SP. Hypothesis 1: The frequency of the following incidents occurring in patients participating in the FMRS will not be different from those in the NEBH/SP: 1. increase in extremity joint pain 2.development of cardiac symptoms 3. unexpected patient fall to floor. Aim 2: Collect preliminary outcome data to inform a future randomized clinical trial of the FMRS and the NEBH/SP. Hypothesis 2: Patients who complete the FMRS will have similar outcomes related to flexibility, lift tolerance, pain, and disability, as patients with similar age and disability who complete the NEBH/SP. Aim 3: Investigate outcomes and tolerance of the FMRS in an older population of patients who were not the target of the original program. Hypothesis 3a: After stratification by age, the FMRS and the NEBH/SP will still show similar outcomes related to flexibility, lift tolerance, pain, and disability. Hypothesis 3b: Modifications to the FMRS may be necessary in order to accommodate older patients.

METHODS: 50 patients will be recruited for each treatment track, FMRS and NEBH/SP. Patients of eighteen years or older, with pain of lumbar spine origin for greater than three months will be included. All patients will complete a visual analog pain scale and an Oswestry Disability Index questionnaire upon initial and discharge evaluation. Functional performance levels for trunk flexion, extension, straight leg raise, and a lumbar lifting ability will be assessed at the beginning and end if treatment for all patients. Adverse events will be collected on all patients. Patients enrolled in the NEBH/SP will be treated with an exercise program including active stretching and weight training using Cybex equipment and free weights. Patients enrolled in the FMRS will be treated using a 15-minute dynamic stretch routine and a 20 minute 10 to 1 circuit that includes equipment free exercises.

RESULTS: Baseline comparisons between the two treatment arms will use univariable analyses such as student’s t-test for continuous variables and chi-square tests for proportions. Tests to compare efficacy between the two groups will initially be univariable and use t-tests or chi-square tests as appropriate. Logistic and linear regression techniques, depending on whether the outcomes are continuous or binary, will be used to compare outcomes after adjustment for potential confounders. These will include age and sex as well as baseline impairment. Stratification by relevant factors will be explored, especially age, to determine how the techniques may work in different age groups and to determine whether there are age groups that should preferentially be studied in a clinical trial. Any adverse events will be collected and compared between the two groups using methods as above.

CONCLUSION: Study initiated 3/14/2016. Ten patients are consented.

SPONSOR: NEBH Internal Funding
Assessment Of Accelerometer-based Navigation For Total Knee Arthroplasty Femoral Resection

AUTHORS: Nicholas D Colacchio, MD, Karim A Elsharkawy, MD, Vivek M Shah, MD, David A Mattingly, MD, Richard D Scott, MD
New England Baptist Hospital, Boston, MA

PURPOSE: Intramedullary alignment devices (IAD) have been the standard for determining femoral resection in Total Knee Arthroplasty (TKA) for decades. Recently, a palm-sized accelerometer-based navigation alignment device (NAD) has been introduced. This study investigates the accuracy of distal femoral resection valgus angle using this novel NAD compared to a traditional IAD.

METHODS: 30 patients undergoing primary TKA (without complex femoral anatomy or hardware) were enrolled. Goal mechanical alignment of the femoral component was determined from preoperative x-rays and programmed into NAD. Resection was performed initially using NAD and then checked with IAD. Any discrepancy was recorded, and whether the NAD or IAD angle was chosen. The accuracy of each method to reproduce the desired resection was determined from postoperative x-rays.

RESULTS: Intraoperatively, 63.3% of knees (19/30) showed the exact same resection angle with NAD and IAD, and 83.3% (25 of 30) were within 1-degree. Of the 5 knees with >1-degree difference, NAD indicated 3-degrees more valgus (relative to IAD) in 2 cases and 2-degrees more valgus in 3 cases. In these knees, the NAD reproduced the desired resection on postop x-rays in one case and would have created increased valgus of 1, 2, 2 and 5-degrees in the others. In these same 5 knees, IAD perfectly reproduced desired resection in 2 cases, 2-degrees less valgus in 2 cases, and 2-degrees more valgus in one case.

DISCUSSION: An accelerometer-based navigation device has promise to provide equivalent accuracy of distal femoral resection valgus angle compared to a traditional intramedullary device. Advantages include its small size, ease of use, and it avoids large pin fixation and violation of the femoral canal.

CONCLUSION: This may prove useful for patients with preoperative deformity, hardware, or those undergoing bilateral TKA, as it may reduce potential complications of fat embolism syndrome or blood loss when the femoral canal is instrumented.
A Pilot study of posterior spinal fusion with a novel biomaterial: Tetranite™, a tetra calcium phosphate/phosphoserine self-setting composite with osteoconductive and osteoinductive properties

AUTHORS: Howard Eisenbrock1, DO, Jonathan Slotkin2, MD, Brian Hess3, Eric Woodward1, MD,
1 New England Baptist Hospital, Boston MA, 2 Gelsein Medical Center, Danville PA, 3 Launchpad Medical, Boston MA,

STUDY DESIGN: This study uses a rabbit model to examine the radiographic and biomechanical properties of intertransverse process spinal fusion using Tetranite™(TM). All animal testing was completed at Pine Acres Research Facility (PARF) in Norton, MA.

METHODS: Twelve adult New Zealand White rabbits of a standard weight underwent testing at the L5-S level. One rabbit was used as a negative control with bilateral transverse process (TP) decorticition without TM placement. Eleven rabbits had bilateral TP decorticition with TM placement. All rabbits were analyzed using Cone Beam Computed Tomography (CBCT) on a weekly basis starting on the first post-operative day to assess graft stability and graft density. Selected animals were chosen for biomechanical testing at 3 weeks, and 6 weeks thus far.

RESULTS: Initial testing (t=0) on three explanted rabbit spines showed max load to segment breakage averaged 131 N (1.4x tensile strength) compared to control 95 N. At three weeks (t=3) max load on tested specimen was 257 N (2.7 x tensile strength compared to control). At 6 weeks (t=6) two samples tested had an average max load of 284 N (3 x tensile strength compared to control).

CONCLUSIONS: Tetranite™ has shown initial promise to be a valuable tool for posterior spinal fusion evidenced by initial strength testing. Ongoing testing will determine what role Tetranite™ may have in future spine surgery.

DISCLOSURE STATEMENT: No disclosures

PRINCIPLE INVESTIGATOR: Howard Eisenbrock, DO

CO-INVESTIGATORS: Jonathan Slotkin, MD, Eric Woodward MD

PARF IACUC Approval #: 16-02; Pine Acres Research Facility, Norton MA
REDCap: A Free and Easy Research Electronic Data Capture System

AUTHORS: Feldman, S.M.1, Morales, E.1 PhD EE

1 Division of Research, New England Baptist Hospital, Boston MA.

INTRODUCTION: REDCap is being utilized at New England Baptist Hospital (NEBH) by research investigators and quality personnel to store standardized data for research or quality improvement purposes. The REDCap application, built by Vanderbilt University, makes building and managing online data collection instruments and respective databases easy by storing data in an organized and standardized manner, preparing it for export and analysis. While there are other alternatives for data collection tools, REDCap was chosen by NEBH because of its reliability, ease, and continued platform growth that allows a synergetic growth of data collection for NEBH investigators.

OBJECTIVE: The objective is to promote the proper use of the REDCap Platform by conducting detailed business intelligence meetings with NEBH investigators for determining accurate needs and developing technical requirements. The goal is to present and promote best practices in database security and data collection and normalization, aiming to reach a scalable project that can easily be analyzed.

METHODS: To begin the process of creating a REDCap Project and its respective database, a business intelligence meeting is conducted with the Project Lead, in which they are asked a series of questions to determine the best type of project to use. There are two types of REDCap Projects: Quality Improvement (QI) and Research. If conducting a Research study, there are an additional two types of projects to choose from: Longitudinal and Surveys. Once it is decided whether the projects will be QI or Research, and its project type, it must be decided who will perform the data entry, and what methods for data collection are required. The process of building a REDCap project is comprised of two phases. The first is a development phase, in which a draft of the project is built and then validated by the Project Lead. In the second phase, Production, the project’s implementation is finalized and data collection is started. The Project Lead is heavily involved in the development process. Multiple meetings are conducted to demonstrate the project and continuously make adjustments until it is approved. After approval, users will be granted access to the project and data collection can begin. The complete building process can take anywhere from one week to eight weeks.

RESULTS: The use of REDCap at NEBH has been very successful. It has been continuously utilized since 2012. We currently have ten studies in production, and many more in development, collecting data or storing it for analysis. These projects include both QI and Research studies. Historically, we have had 82 REDCap users, 96,863 records, 312 instruments, 16,274 fields, with 52 projects in total of which 84% belong to research studies, and 16% to QI projects.

CONCLUSION: REDCap has proven to be an efficient tool for online data collection. REDCap is the easiest to use, most affordable, and most accessible data collection tool being utilized at NEBH. Any person wishing to conduct research should talk to NEBH’S Division of Research and request that a REDCap project be built, so as to best collect and analyze their data.

SPONSOR: New England Baptist Hospital

DISCLOSURE STATEMENT: REDCap must be properly referenced on any publication.

ACKNOWLEDGMENT(s): Kenny Adetutu and Rob Perez for their support in upgrading our software; Ellen Kornell for IRB submissions and approvals.
Arthroscopic Treatment of Recalcitrant Medial Epicondylitis

AUTHORS: Lazar, Damien J 1, Wei, David H, MD, MS 2, Gaddie Todd J, MD 3, Kimball III, Hervey L, MD, MS 4

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2 Orthopaedic and Neurosurgery Specialists, Greenwich, CT
3 Tufts Combined Hand Fellowship, Boston, MA
4 Hand Surgical Associates, Boston, MA

OBJECTIVE: Determine if arthroscopic treatment of recalcitrant medial epicondylitis is a safe and effective treatment method.

METHODS: Retrospective review of patients who underwent arthroscopic medial epicondylitis surgery between November 2009 and December 2014. We included all patients with medial epicondylitis who failed of a one year course of non-operative treatment with persistent pain, regardless of age, gender, or medical comorbidities. We excluded patients who had prior surgery for medial epicondylitis or elbow instability. We assessed patients for physical function and patient-reported clinical outcomes through administration of the validated Disabilities of the Shoulder and Hand (DASH) questionnaire and Patient Reported Outcomes Measurement Information System (PROMIS) Short Form 10a via mail or telephone conversation (Doring) (Hung).

RESULTS: We included a total of 36 patients who met the study criteria with a mean follow-up of 16 months. Of the 36 patients, 33 patients experienced no complications or post-operative ulnar nerve symptoms. One patient experienced ulnar nerve symptoms, and two patients required revision surgery approximately one year after the original surgery; one patient with persistent pain, and another with both persistent pain and ulnar neuropathy. Among the 36 patients in the study, eight patients were reached for additional follow-up and completion of the DASH and PROMIS forms. Five female patients and three male patients with an average age of 50.1 years at the time of surgery (range 41-56) responded to our questionnaires. The mean follow-up time was 29 months from the time of surgery (range 6-66 months). Three of the eight patients had also undergone surgical treatment of lateral epicondylitis in the ipsilateral arm. The mean DASH and PROMIS scores reported were 17.8 (SD 20.5) and 46.6 (SD 14.5), respectively. When compared with the normative values of the general population, we found no significant difference in arthroscopic treatment group in terms of overall physical function of the upper extremity as determined by mean DASH and PROMIS scores (p=0.323 and p=0.531, respectively).

CONCLUSION: Arthroscopic treatment for medial epicondylitis is a safe and effective surgical option that may be considered as an alternative treatment to the traditional open approach. Future investigations with randomized controlled trials of large cohorts using validated patient reported outcomes are warranted.

SPONSOR: This study was not sponsored or funded.

DISCLOSURE STATEMENT: None of the authors have a disclosure, financial or otherwise as it relates to this project.
Does a Patient's Self-Reported Ability to Weight-bear Immediately after Injury Predict Stability for Ankle Fractures?

AUTHORS: Hofmann KJ¹, Chien B¹, Ghorbahnoseini M², Zurakowski D³, Rodriguez EK³, Appleton P⁴, Ellington JK⁴, Kwon, JY²

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INTRODUCTION: Determining stability of ankle fractures, particularly Weber B fibula fractures, can be challenging. Ability to weight-bear after injury may be predictive of stability. We seek to determine whether patients’ ability to weight-bear immediately after injury is an effective indicator for ankle stability following fracture.

OBJECTIVE: We hypothesize that the ability to weight-bear immediately after injury has a high predictive value for a stable mortise whereas the inability to fully weight-bear at the time of injury predicts instability.

METHODS: A prospective review was conducted of 121 patients who sustained an isolated unilateral lateral malleolar, bimalleolar, or trimalleolar ankle fracture. Patients’ ability to weight-bear after injury was elicited on initial presentation and correlated with ankle radiographs which were deemed stable or unstable based on commonly used indices to assess stability (i.e. widening of the medial clear space). Sensitivity, specificity, positive and negative predictive value were determined using standard formulas in order to assess a patient’s ability to bear weight as a predictor of ankle fracture stability (sensitivity) and a patient’s inability to bear weight as a predictor of instability (specificity).

RESULTS: For the entire cohort, patients who were able to weight-bear immediately after injury were over 8 times more likely to have a stable fracture than those who could not (OR = 8.7, P < 0.001). Positive predictive value (PPV) for being able to fully weight-bear as it relates to stability was 73%. Inability to weight-bear was 85% specific among patients with an unstable fracture. When analyzing patients with radiographic isolated fibula fractures (n = 67), PPV = 82%, NPV = 53%, specificity = 79%, while the OR was 5.0 (P = 0.003) for those who could weight-bear having a stable fracture. When sub-analyzing patients who presented with isolated fibula fractures and anatomic mortises (n = 43), PPV = 74%, NPV = 52%, specificity = 62%, while the OR was 3.6 (P = 0.07) for those who could weight-bear having a stable fracture.

CONCLUSION: Patients’ ability to weight-bear immediately after injury is a specific and prognostic indicator for stability across a range of ankle fracture subtypes. Patients with an isolated fibula fracture and anatomic mortise were 3.6 times more likely to have a stable fracture if they were able to fully weight-bear at time of injury. While a patients’ history does not preclude the need for appropriate imaging studies and clinical judgment, it may aid in the assessment of ankle stability following fracture.

SPONSOR: None.

DISCLOSURE STATEMENT: The author(s) received no financial support for the research, authorship, and/or publication of this study.

PRINCIPAL INVESTIGATOR NAME: John Y. Kwon, MD
Door Openings in the Operating Room Associated with Increased Environmental Contamination

AUTHORS: Priscilla Perez¹, Julia Holloway¹, Lucy Ehrenfeld¹, Susan Cohen¹, Riya Joshi¹, Linda Cunningham RN¹, Brian Hollenbeck MD¹
¹New England Baptist Hospital, Boston MA

INTRODUCTION: Door openings in the Operating Room (OR) have been hypothesized to increased OR environmental contamination.

OBJECTIVE: This study measures average Colony Forming Units (CFU) in the OR as a function of door openings and other potentially important variables.

METHODS: Bacterial settle plates were placed inside and outside of laminar airflow (LAF) by both exit doors, on the instrument table, and back instrument table (if applicable) for 48 orthopedic and general surgery procedures. Different plates were used for the period of time from surgical kit opening until incision, and from incision to closure. Colony Forming Units (CFU) were counted on each plate, and average CFU per plate was measured. CFU data was paired to Staphylococcus aureus colonization status, door openings, surgery duration, time of day, OR location, number of staff, use of Bair Hugger® warming device, temperature and humidity. Wilcoxon two-sample test or univariate linear regression were used for analysis, as appropriate, with threshold for statistical significance set at p = 0.05.

RESULTS: 48 procedures were observed (24 arthroplasty, 7 arthroscopy, 6 podiatry, 5 spine, 4 general surgery, 2 tendon repair). There were an average of 54 (21 – 122) door openings per case, or 0.38 (0.21 – 0.61) door openings per minute. Plates averaged 2.47 CFU (range 0.00 – 13.25), with higher average CFU from plates outside of LAF compared to plates inside of LAF (p < 0.05), and from plates exposed during case set-up compared to exposure from time of incision to skin closure (p < 0.05) (Figure 1). Number of door openings (Table 1) was statistically associated with higher average CFU overall, and for the subset of cultures outside of LAF, but not for the subset of cultures within LAF. Within LAF, only number of participating staff was associated with higher CFU.

CONCLUSION: Increase in number of door openings and surgery duration increases CFU counts in the operating room, but the relationship between these variables is only observed outside of LAF. Within LAF conditions, the number of participating staff was associated with higher CFU.

SPONSOR: N/A

DISCLOSURE STATEMENT: No disclosures to report

ACKNOWLEDGMENT(s): Microbiology staff, OR nursing, NEBH surgeons for participation
Patient age differences in expectations and outcomes of total shoulder arthroplasty

AUTHORS: Jeremiah T. Lowe, BA\textsuperscript{1}, Mariano Menendez, MD\textsuperscript{2}, Suzanne Miller, MD\textsuperscript{1,3}, Andrew Jawa, MD\textsuperscript{2,3}

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INTRODUCTION: Younger and older patients alike are undergoing shoulder arthroplasty at increased rates. As payment models shift toward a focus on value, it is increasingly important to understand sources of suboptimal patient-reported outcomes and experience. We examined and compared expectations and mid-term functional outcomes between patients younger and older than 65 years undergoing primary anatomic TSA.

OBJECTIVES: 1. To assess whether expectations differ by age group (younger or older than 65 years) and if those expectations were achieved at comparable rates postoperatively. 2. To address whether age can predict self-reported outcomes through a minimum of three years as measured using the American Shoulder and Elbow Surgeons (ASES) questionnaire, and the Short-Form Health Survey (SF-12) physical and mental component summaries.

METHODS: We conducted a retrospective review of data obtained in a prospective study of 74 consecutive patients who underwent anatomic TSA. Patients < 65 years old were assigned to the younger group. Preoperatively, patients selected 3 main expectations for improvement and completed the American Shoulder and Elbow Surgeons (ASES) questionnaire and the Short-Form Health Survey (SF-12). We obtained follow up outcome scores at a minimum of 3.5 years after TSA, and patients reported whether they met their preoperative expectations. We used Pearson chi-square and Fisher exact tests to compare preoperative and met expectations between younger (< 65 years) and older (\geq 65) patients. Paired t-tests were performed to assess within-group changes in ASES and SF-12 scores, and independent-samples t-tests were used for between-group comparisons. Statistical tests were 2-sided with P<0.05 indicating statistical significance.

RESULTS: Top expectations for both age groups were the ability to participate in sports and the ability to sleep painlessly. Younger patients more often expected to maintain employment (P=0.046), whereas older patients expected to better participate in recreational activity (P=0.02). We observed that younger patients were slightly less satisfied with ability to participate in sports or exercise (79\% vs 94\%; P=0.21), although this was not significant with our sample size. Postoperative ASES and SF-12 scores indicated significant and comparable improvement across age groups, but younger patients had higher residual VAS pain (P=0.03). Expectations were met at high rates that were statistically similar regardless of age group.

CONCLUSION: Patients of both age groups see comparable functional improvement after TSA. Principal expectations for improvement are largely similar across age groups, and expectations are satisfied at high rates postoperatively. However, younger patients report more residual pain, and the trend of marginally higher dissatisfaction with the ability to participate in sports warrants further investigation.

DISCLOSURE: Andrew Jawa, MD has been a paid speaker for DJO Global. Suzanne Miller, MD has been a consultant for Stryker.

PRINCIPAL INVESTIGATOR: *Andrew Jawa, MD
Patients recall worse preoperative pain and function after shoulder arthroplasty than originally reported: a study of recall accuracy using the ASES score

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INTRODUCTION: Patient recall of preoperative pain and function may be inaccurate after orthopaedic surgery. Existing research on the subject has been mixed, and there are sparse data regarding the longevity of recall accuracy. We tested this hypothesis among patients undergoing total shoulder arthroplasty (TSA) using the patient-reported American Shoulder and Elbow Surgeons (ASES) assessment score. If accurate, recalled scores would be a valuable asset to outcomes research lacking pre-operative data.

OBJECTIVES: 1. To determine whether postoperative recall of preoperative pain and function is accurate at several time-points up to 12 months. 2. To identify any factors associated with recall accuracy. We hypothesized that long-term recall would not be comparable to actual preoperative ratings.

METHODS: Recalled ASES scores were collected postoperatively at 6 weeks, 3 months, 6 months, and 12 months from 170 patients who had also completed scores prior to shoulder arthroplasty. Preoperative and recalled ASES scores were compared with paired t-test and Wilcoxon signed-rank test for normally distributed and non-normally distributed data, respectively. Identical analysis was completed for visual analog scale (VAS) pain, a metric included in the ASES questionnaire.

RESULTS: Preoperative and recalled ASES scores were comparable at 6 weeks postoperatively (p = 0.11). Recalled scores were significantly lower (worse pain and function) than preoperative score at all subsequent time-points (p = 0.0003 at 3 months; p = 0.004 at 6 months; and p = 0.0002 at 12 months). The only significantly associated variable was preoperative VAS pain which predicted poorer recall accuracy (r = 0.08, p = 0.0002).

CONCLUSION: Beyond 6 weeks after TSA, patients are not able to accurately recall their preoperative level of pain and function as measured by VAS or ASES. Patients tend to recall having worse preoperative pain and function than originally reported. Nevertheless, our findings may support the validity of recalled scores obtained within a reasonable timeframe (6 weeks or fewer) after shoulder arthroplasty.

DISCLOSURES: Andrew Jawa has been a paid speaker for DJO Global; Xinning Li is a consultant for Mitek and Tornier

ACKNOWLEDGMENTS: Thank you to Riya Joshi for assistance with our statistical analysis

PRINCIPAL INVESTIGATOR: Andrew Jawa, MD
The Effect of a Preoperative Educational Video on Patient Understanding and Satisfaction for Total Shoulder Arthroplasty

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INTRODUCTION: Clear communication and education is a priority in delivering excellent patient care and improving patient satisfaction. Ensuring patient comprehension is particularly important when there may be significant risks associated with treatment, such as surgery. Several studies in the lower extremity have examined patient understanding as it pertains to informed consent; however, few studies evaluated the understanding in the shoulder. While there are many tools available to educate patients, we were interested in the effectiveness of the standard office visit with a supplemental video as methods of instruction and the resulting information retention. Significant improvement in information retention when a supplemental educational video is provided may reduce patient questions and decrease the time commitment by providers and staff.

OBJECTIVES:
1. To evaluate the effects of a preoperative educational video on patient understanding and satisfaction.
2. To investigate the usefulness of patient educational videos.

We hypothesized that the addition of an informational video to the standard office visit would improve patient understanding and satisfaction.

METHODS: All patients seen for total shoulder arthroplasty consultation by a single board certified orthopedic surgeon from February 1, 2015 to November 1, 2015 and who intended to proceed with surgical intervention, were considered for participation. Sixty-one patients were enrolled in the study and one declined participation. All patients received an initial questionnaire comprised of nine true or false clinical statements and two Likert-type scale satisfaction questions following their initial surgical consultation. Thirty patients were assigned by random number generation to receive an educational video in addition to printed educational materials received by the control group. Participants were seen for follow up and were presented with the same questionnaire. Performance on the initial and follow up questionnaires was compared to determine information retention.

RESULTS: Initial visit true/false mean scores of the two groups were compared to the scores at the follow up visit and did not differ significantly (p=0.80). There was no difference in satisfaction with the physician consultation between the group provided the additional video and the group without (p=0.97). The reported satisfaction with the quantity of information provided did not differ between groups (p=0.87).

CONCLUSION: Supplemental video education was regarded positively, however, not effective in improving patient understanding as measured by true/false statements. With no significant difference in patient perception of the information provided, the findings indicate that although there is no substitution for a thorough office visit, supplemental materials were considered beneficial. Additionally, some patients given the video resource chose not to watch while others regarded it as a useful tool to educate family and support staff.

DISCLOSURES: Andrew Jawa, MD has been a paid speaker for DJO Global.

ACKNOWLEDGMENTS: Thank you to Qingping Cui for assistance with the statistical analysis.

PRINCIPAL INVESTIGATOR: Andrew Jawa, MD

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Identifying Nurses’ Perceptions of Barriers to Research at an Orthopedic Specialty Hospital

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INTRODUCTION: Evidence based practice has long been recognized by the health care community and nursing to provide safe and quality care for patients. The Institute of Medicine has recommended that 90% of all clinical decisions be evidence based by the year 2020. Despite the importance of evidence based practice and a supportive Research Department at New England Baptist Hospital (NEBH), only a handful of nurses at NEBH are actively participating in research. A large number of research studies are found in the literature, identifying a variety of barriers to nursing research in settings from small community hospitals to large academic institutions and from Magnet recognized hospitals to non-Magnet hospitals. As the NEBH Nursing Department embarks on the Journey of Excellence towards Magnet recognition, it is important to identify the barriers to nursing research so a plan can be developed and implemented to foster and utilize evidence based practice as part of the required Magnet Component of New Knowledge, Innovations and Improvements.

OBJECTIVE: What are the barriers to nursing research at NEBH?

METHODS: A demographic questionnaire along with the BARRIERS to Research Utilization Scale developed in 1987 by Funk, Champagne, Tornquist and Wise, a 29 item Likert questionnaire with 3 open ended questions was distributed to all NEBH employed RNs over a two week period (March 28 – April 11, 2016).

PRELIMINARY RESULTS: The data is in the final stages of analysis with 52% of the 414 surveys distributed being returned. The demographics show that the majority of respondents work full time on the day shift, have a BSN degree, are members of professional organizations and are certified in a specialty area. Time was identified as a barrier 35% by the respondents.

SPONSOR: None

DISCLOSURE STATEMENT: None

ACKNOWLEDGMENT: Thank you to the Research Department for their support and to Dr. Sandra Funk for permission to use the Barriers Scale

PRINCIPAL INVESTIGATOR NAME: Kathy McCarraher
NEBH Joint Registry: A Robust Data Collection Method with Scalable Features for Research Expansion

AUTHORS: Morales, E. PhD EE¹, Feldman, S. M.¹, Schneider. G. B. MD, PhD

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INTRODUCTION: Given the high volume of Joint Arthroplasty surgery at New England Baptist Hospital (NEBH), the Division of Research started the efforts of building an Orthopedic Research Registry in 2008. Today, almost 8 years later, the Orthopedic Registry has become a robust instrument that automatically collects hip and knee arthroplasty surgery data. The data being collected includes patient demographic data (Level I), and surgery detail data (Level II). A total of 65 fields are currently being collected. The goal for the Joint Registry is to collect Patient Reported Outcome data (Level III) in pre-defined intervals: Pre-operatively, and Post-operatively at 1, 3, 5, and 10 year intervals. The Orthopedic Registry is currently in a critical improvement stage, in which the features built for the Joint Registry are being leveraged and scaled to begin building the Spine Registry. The collection of Level III data is an active topic for the Joint Registry Committee, and a solution is being designed which will subsequently be utilized as the basis for Spine Level III data collection as well. In a comparison between institutions contributing to a Joint Registry, NEBH is the institution with the second highest reported surgeries per year, and has the potential to compete with Joint Registries from Cleveland Clinic, Hospital for Special Surgery, Kaiser Permanente, American Joint Replacement Registry, and CJRR for the largest Joint Registry.

OBJECTIVE: The current objective of the Joint Registry is to improve its data collection processes and maintain a high data integrity standard as well as scale its features for incorporating a Spine Registry during FY16. The data collection tool for collecting Patient Reported Outcomes (PRO) is currently being designed. It is scheduled to be finalized during FY16 and implemented during FY17. The ongoing maintenance of the Joint Registry is a daily objective that includes critical and non-critical improvements, data maintenance, and data auditing.

METHODS: The Joint Registry is comprised of tools for data collection and data storage. Level I and II data is exported from Soanian and OR Manager (part of NEBH's EMR), and is transferred into the Joint Registry’s server during a scheduled, automatic data migration process. The Joint Registry is currently utilizing Liaison Technology Platform for data storage, data reporting, data migration, data maintenance, and data export, as well as its interface for testing purposes. The instruments for collecting Level I and II data in the Joint Registry were finished in the winter of 2016, and at the same time the development of Spine Registry’s instruments for Level I and II data began. The Joint Registry utilizes an annually reviewed IRB protocol which allows for data collection of all Joint Arthroplasty patients. The efforts and direction of the Joint Registry are guided by the Registry Committee.

RESULTS: At the moment, the Joint Registry currently contains over 16,000 surgery cases, and over 14,000 registered patients. A total of 2808 hip arthroplasty surgeries and 3308 knee arthroplasty surgeries were collected in 2015, with 2533 and 3037 being primary surgeries for hip and knee arthroplasty, respectively.

CONCLUSION: Due to its large yearly surgical volume, the Orthopedic Registry at NEBH has the potential of becoming the second largest joint arthroplasty registry being maintained by an institution. The direction that the Registry Committee has established for the registry has proven efficient as the registry keeps improving, and it currently contains valuable data that can be used for research. Furthermore, it is imperative to reach a functional instrument for collecting PROs; only then can the Joint Registry be completed.

SPONSOR: New England Baptist Hospital

DISCLOSURE STATEMENT: PHI data was fully de-identified, according to HIPAA standards before any data summaries were generated.

ACKNOWLEDGMENT(s): Priscilla Perez, Julia Holloway, Lucy Ehrenfeld, Andrew Braziel, Abraham Kim, Ryan Pokorney, Mark Sucher, Joseph Ward, Haley Oh, Dr. Gary Schneider, Tim Cotou, Dr. Carl Talmo, Dr. Scott Tromanhauser, Kathy Knoblich, Kevin Donahue, Jake Donovan, Qingping Cui.

PRINCIPAL INVESTIGATOR NAME: Eduardo Morales
High Grade Partial and <2cm Retracted Proximal Hamstring Ruptures: Non-Surgical Treatment Revisited

AUTHORS: Piposar, J.R., Vinod, A.V., Olsen, J.R., Lacerte, E., Miller, S.L. New England Baptist Hospital, Boston, MA

INTRODUCTION: High grade partial proximal hamstring tears and complete tears with retraction less than 2 centimeters (cm) are a subset of proximal hamstring injuries where, historically, treatment has been non-operative. We have followed a subset of these patients who have persistent physical limitations and pain who required surgery. While some of these injuries are treated by operative repair, it is unknown how non-operative compares to operative treatment.

OBJECTIVE: We compared the clinical and functional outcomes of non-operative and operative treatment of partial/complete proximal hamstring tears. We hypothesize that operative treatment of these tears leads to better clinical and functional results.

METHODS: A retrospective review of patients with a high-grade partial or complete proximal hamstring rupture with retraction less than 2 cm were identified from 2007-2015. All patients had an initial period of non-operative treatment. If patients had continued pain and/or limited function refractory to non-operative treatment with physical therapy, then surgery was offered. Outcome measures assessed were each patient’s strength perception, ability to return to activity, lower extremity functional score (LEFS), SF-12 physical and mental component outcome scores, distance traversed by a single leg hop, and Biodex hamstring strength testing.

RESULTS: A total of 25 patients were enrolled in the study. The 15 patients who were treated non-operatively sustained injuries at an average age of 55.73 +/- 14.83 years of age and evaluated 35.47 +/- 30.35 months following injury. The 10 patients who elected for surgery sustained injuries at 50.40 +/- 6.31 years of age (p=0.23) and were evaluated 30.11 +/- 19.43 months following surgery. Lower Extremity Functional Scores were significantly higher for the operative group compared to the nonoperative group (77.80 vs 64.3/80; p=0.01). SF-12 Physical Component Scores for the operative group were also significantly higher (p=0.03). The operative group also did significantly better returning to recreational activity (p=0.05) and not having the injury interfere with current daily activities (p=0.03).

CONCLUSION: Patients who undergo operative and non-operative treatment of high grade partial and/or complete proximal hamstring tears with <2 cm retraction demonstrate good clinical and functional outcomes. In our series, 40% of patients treated non-operatively with physical therapy went on to have surgery. For those patients with persistent pain and/or loss of function despite conservative treatment, surgical repair is a viable treatment option that is met with good results.

SPONSOR: None

DISCLOSURE STATEMENT: Suzanne L. Miller, MD has ownership in Parkus Medical.

ACKNOWLEDGMENT: Amanda Fredette, Qingping Cui, MPH
Comparing the impact on wellbeing between hip osteoarthritis and lumbar spinal stenosis

AUTHORS: James Rainville1, James Bono1, David Kim1, Eric Laxer2, Alden Milam2, John Lavelle3, Andy Haig2, Jeffrey Katz3, Aage Indahl4, Pradeep Suri5, David Borenstein4

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INTRODUCTION: Hip osteoarthritis (hip OA) and lumbar spinal stenosis (LSS) are 2 common degeneration musculoskeletal conditions affecting the aging population. As their impact on wellbeing is measured with disease specific measures, comparisons between disorders are difficult. The National Institute of Health (NIH) funded the development of Patient Reported Outcomes Measurement Information System (PROMIS), which is a system of precise measures of patient-reported health status for physical, mental, and social wellbeing that are standardized across a variety of chronic diseases, allowing for the comparison of disease impact between disorders. PROMIS items comprise the Impact Stratification measure used to assess the impact of chronic back pain on wellbeing. Because it’s components are PROMIS items, this scale is equally valid for assessing hip OA.

OBJECTIVE: This study explored the use of the Impact Stratification measure to measure health status in patients with hip OA and patients with LSS.

METHODS: 77 patients with symptomatic and imaging confirmed hip OA and 79 with symptomatic and imaging confirmed LSS were recruited by subspecialty physiatrist and orthopedic surgeons. Included patients did not have both syndromes, nor other major contributors to their symptoms. Patients completed a questionnaire that assessed demographics, general health, medical treatments and included the Impact Stratification measure. Hip OA and LSS subjects’ responses were compared using chi square for categorical items, Spearman rank order test for ordinal items and student t-test for scale items.

RESULTS: More hip OA patients were female, and LSS patients were slightly older. All other demographics were similar between groups. Symptoms were chronic and daily in the majority of patients, with both groups reporting similar medication use for pain relief. Impact Stratification measures scores showed that both disorders had similar detrimental impact on wellbeing [mean score (Standard Deviation) Hip OA 32 (8); LSS 31 (8), p=.45].

CONCLUSION: The PROMIS based Impact Stratification successfully measured the impact of hip OA and LSS on wellbeing and found they were similar. These results suggest that patients seek medical care for musculoskeletal disorder when symptoms impact their live at a similar level, regardless of the disorder.

ACKNOWLEDGEMENT: This study was funded by the Michael Wall Charitable Foundation

PRINCIPAL INVESTIGATOR: James Rainville
Comparisons of symptoms from hip osteoarthritis and lumbar spinal stenosis

AUTHORS: James Rainville1, James Bono1, David Kim1, Eric Laxer2, Alden Milam2, John Lavelle3, Andy Haig4, Jeffrey Katz4, Aage Indahl5, Pradeep Suri5, David Borenstein6

1 NEBH, Boston, MA, 2 Orthocarolina, Charlotte, NC, 3 Tennessee Orthopedic Clinic, Knoxville, TN, 4 University of Michigan Medical School, Ann Arbor, MI, 5 Brigham and Women’s Hospital, Boston MA, USA, 6 Vestfold Hospital Trust, Kysthospitala, Norway, 7 VA Puget Sound Health Care System, Seattle, WA, 8 George Washington Medical Center, Washington, DC

INTRODUCTION: Hip osteoarthritis (hip OA) and lumbar spinal stenosis (LSS) are 2 common, and often concurrent degeneration musculoskeletal conditions. Both disorders develop over many years and are often asymptomatic during much of their clinical course. When symptomatic, both disorders can produce lower extremity symptoms that impair walking. Therefore, clinicians must carefully assess the locations and patterns of symptoms before assigning a diagnosis to patients’ complaints.

OBJECTIVE: This study examined the patterns and locations of complaints for symptomatic hip OA and LSS with the goal of identifying symptoms that best differentiate these disorders.

METHODS: 77 patients with symptomatic and image confirmed hip OA and 79 with symptomatic and imaging confirmed LSS were recruited by subspecialty physiatrist and orthopedic surgeons. Included patients did not have symptoms from both syndromes, nor other major contributors to their back/extremity symptoms. Patients completed a detailed questionnaire about the precise locations and characteristics of their symptoms (items). Frequency of positive responses to items were calculated for each diagnosis. Based on a priori power analysis, items with differences in response frequencies of at least 30% were proposed as having the most potential for differentiating these disorders.

RESULTS: More hip OA patients were female (58% vs. 42%, p=.04), and LSS patients were slightly older (69 vs. 64, p=.001). Ethnicity, employment status, education and tobacco use were similar between groups. Symptoms were chronic and daily in the majority of patients, with both groups reporting similar medication use, pain intensity and functional impact from their symptoms. All pain locations and symptom patterns were noted by some patients for both disorders. Based on a 30% difference in response frequencies, hip OA more often produced pain in the groin, outside of hip, front of thigh and knee, while LSS more often produced pain below the knee and leg tingling or numbness. Hip OA symptoms more often occur immediately with walking, caused limping, and produced symptoms with functional tasks such as dressing the symptomatic leg, climbing stairs, changing postures and getting in and out of a car.

CONCLUSION: Hip OA and LSS produce many overlapping symptoms, and the presence of specific symptom locations and patterns cannot exclude either diagnosis. However, anterior and proximal leg pain favor hip OA and distal leg symptoms favors LSS. In addition to interfering with walking, hip OA more often interferes with leg function during common daily activities.

ACKNOWLEDGEMENT: This study was funded by the Michael Wall Charitable Foundation

PRINCIPAL INVESTIGATOR: James Rainville

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The Effect of a Skin Barrier Film Product on Incidence of Postoperative Skin Blister Development in Spine Surgery: A Randomized Study

AUTHORS: Kerry Sorrentino, RN, BSN, Maryanne Cole, MSN, RN, Stephen Donovan, RN, and Emily Sturgis, RN, BSN

Department of Nursing, New England Baptist Hospital, Boston, MA

INTRODUCTION: Patient injury prevention is a core standard of practice provided within the perioperative process. The importance of the prevention of adhesive-related skin injuries, specifically tension blisters, is well documented in the literature (Jester et al., 2000). The decrease in the occurrence of postoperative skin blisters is correlated with a decrease in the associated risks of surgical site infections as well as a decrease in the need for an extended length of stay in relation to acquired skin blisters (Jester et al., 2000). McNichol, Lund, Rosen, & Gray (2013) confirm that with the development of skin blisters, the patient experiences increased pain, delayed wound healing, and ultimately the hospital acquires an increased associated cost burden. McNichol, Lund, Rosen, and Gray (2000), also state that patients who develop Medical Adhesive-Related Skin Injury (MARSi) ultimately experience a risk of longer term morbidity and mortality along with a reduced quality of life. A standardized approach to surgical dressing composition and placement that is concluded to reduce the risk of postoperative skin blister formation would foster optimal patient outcomes in this specific area of nursing care.

OBJECTIVE: To evaluate the effectiveness of utilizing a skin barrier film underneath the transparent film dressings and drapes in the prevention of postoperative skin blister development.

Hypothesis: Postoperative spine patients who receive a liquid film forming acrylate barrier product on the skin underneath a transparent film dressing and infection prevention barrier drapes will have a lower occurrence of adhesive border tension blisters compared to patients who receive only the standard transparent film dressings and infection barrier drapes alone.

METHODS: The study is, randomized, double-blinded, controlled trial conducted at NEBH. 200 patients under the surgical services of Spine Physicians at NEBH undergoing fusions, revision fusions and multi-level laminectomies and who will subsequently be admitted to the assigned nursing units will be offered enrollment. Exclusion criteria include a documented adhesive allergy/sensitivity or any other condition that would prevent utilization of routine dressings.

RESULTS: The data is currently being collected as this is an active study therefore there are no results to report at this time.

SPONSOR: New England Baptist Hospital

DISCLOSURE STATEMENT: None to report

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PRINCIPAL INVESTIGATOR: Kerry Sorrentino

CO-INVESTIGATORS: Emily Sturgis, Lauren Kirk, & Haley Olson
Racial Discrepancies in Distal Radius Fracture Management

AUTHORS: Tsai EY, ZAntonchak M¹, Wang M¹, Stelma S¹, Wei DH¹, Cassidy C.¹
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INTRODUCTION: Previous studies have found significant ethnic discrepancies in the utilization of various orthopaedic procedures such as joint arthroplasty and spine surgery. These studies have focused on Black, White, and Hispanic racial groups with minimal attention to the Asian population. Distal radius fractures are one of the most commonly treated fractures by orthopaedic surgeons and is one that often requires operative fixation to achieve optimal outcomes. The purpose of this study was to determine if there exists a difference in attitude toward operative intervention for distal radius fractures in the Asian population compared to White, Black, and Hispanic populations.

OBJECTIVE: Our objective was to do determine if any factors, in particular ethnic, that correlated with the likelihood the patient would agree to undergo surgery for their distal radius if the option was presented to them.

METHODS: We performed a chart review of 500 consecutive patients who presented to our institution with an ICD-9 code for distal radius fracture from 2012 to 2015. A total of 299 patients were included in our study. Exclusion criteria were patients less than 18 years of age, incomplete demographic information, miscoded patients, and non-acute presentation. Variables extracted from the patients’ charts included gender, age, ethnicity, primary language, insurance status, marital status, handedness, occupation, date of injury and presentation, smoking and alcohol status, comorbidities, surgical history, and whether surgery was offered for their distal radius fracture. In addition, the radiographs of patients treated nonoperatively were reviewed to assess whether they were potential surgical candidates given the appearance of their fracture. The proportion of patients who were offered surgery to those that accepted surgery, as well as those that were radiographic surgical candidates to those that underwent surgery was calculated and a z-test was used to determine statistical significance which was set at a p-value of less than 0.05.

RESULTS: Of the 299 patients included in our study, 62.9% were White, 26.8% were Asian, 5.7% were Black, and 5.0% were Hispanic. Based off radiographic assessment for surgical candidacy, White patients were significantly more likely to accept surgery than Asian patients (88.5% versus 57.1% respectively, p<0.0001). When surgery was documented as a recommendation in the chart, White patients were significantly more likely to accept surgery compared to Asian patients (91.4% versus 45.5% respectively, p=0.0008).

CONCLUSION: Asian patients are significantly more likely to refuse surgery for distal radius fractures compared to their White counterparts. This may reflect an underlying wary attitude toward surgery in the Asian population which is supported by a prior study looking at ethnic discrepancies in regard to joint arthroplasty. A better understanding of the cultural attitudes of Asian patients may assist surgeons in providing optimal care for this patient population.

SPONSOR: No sponsor

DISCLOSURE STATEMENT: No disclosures to report

ACKNOWLEDGMENT(s): No acknowledgements

PRINCIPAL INVESTIGATOR NAME: Charles Cassidy
Blood Management in an Orthopedic Setting

AUTHORS: LeVinus, LA, Deeney, M, Bode R, Hayek J.
New England Baptist Hospital, Boston, MA

INTRODUCTION: Transfusions are one of the most over-utilized treatments performed in any hospital setting (Choosing Wisely Campaign, April 2014, www.choosingwisely.org/societies / american-association-of-bloodbanks). Costs and risks attributed to transfusions are high and may have a significant impact on patient safety. In our institution we perform over 10,500 joint replacements and spine surgeries per year, making transfusion-associated costs very high. We implemented patient blood management (PBM) strategies aiming to reduce waste, exposure to allogeneic blood by decreasing transfusions, and transfusion associated costs while maintaining quality patient outcomes.

PBM strategies were phased in over a two fiscal year (FY) period with FY13 as baseline and FY14 and FY15 as the monitoring period. A blood utilization dashboard was created to monitor the impact and included graphic representations of transfusions per discharge, crossmatches per discharge, perioperative autologous blood recovery, and autologous and allogeneic waste rates.

METHODS: We made the following changes: 1) revised the Maximum Surgical Blood Ordering Schedule (MSBOS) to reflect current surgical practices, minimized excessive ordering of blood products, and reduced blood inventory par levels in the blood bank to decrease potential waste; 2) assigned a hospitalist to each nursing unit as part of the Model of Care Program where continuum of care was optimized as part of an individualized care planning approach. This care plan included real time assessment of transfusion need according to hospital published transfusion guidelines; 3) implemented specific PBM strategies peri-operatively by reconstructing our cell salvage program. This ensured maximum retention of each patient’s red cell mass. We also introduced the use of tranexamic acid for total hip and knee arthroplasties to reduce post-operative bleeding.

RESULTS: The impact of implementing PBM strategies was monitored and measured with three organization wide metrics during FY14 and FY15 using data from FY13 as baseline.

CONCLUSION: After review of our metrics during the monitoring period, our implementation of PBM strategies achieved our stated goals of reducing the use of allogeneic blood by decreasing transfusions, making the MSBOS consistent with surgical procedures performed currently, increasing the effective utilization of our cell salvage program and implementing tranexamic acid to maintain patient red cell mass. Additionally, review of the actual blood spend metric indicated that the implementation of PBM strategies produced significant cost savings for our organization.

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